



RTCA Paper No. 039-15/SC229-007

EUR 110-15/ WG98-09

Washington DC and Malakoff, 26 March, 2015

RTCA SC-229 Plenary # 3/ EUROCAE WG-98 Plenary # 4 - Minutes
“Aircraft Emergency Locator Transmitters (ELTs)”

Date	Wednesday 13th through 15th January, 2015
Place	Washington DC
Venue	1150 18th Street NW, Suite 910, Washington DC 20036
Hosted	RTCA

Present:

Name	First name	Company
Akatiff	Mike	ACK Technologies Inc
Anderson	Richard	The Boeing Company
Annett	Martin	NASA
Bagi	Charles	Emergency Beacon Corporation
Black	Jamie	FAA
Bouhet	Alain	OROLIA
Bousquet	Sophie	RTCA
Burrows	Adrian	AAIB
Chadli	Mohammed	BEA
Chism	Linda	Alaska Airlines
Cresp	Claude	ELTA
Curran	David Gerard	Ad Astra Aero Consulting
Dessaline	Assata	FAA
Dutruc	Hervé	Airbus Helicopter
Fitzmaurice	Mickey	NOAA SARSAT
Foster	Anthony	NASA
Fuhrmann	David	U.S. Air Force RCC
Green	Charisse	FAA
Greaves	Matthew	Cranfield University
Hiner	Eric	Astronics DME corp.
Hoffman	Chris	ACR Electronics, Inc.
Horiot	Christophe	Airbus
Knox	Allan	U.S. Air Force
Lemon	Dan	NOAA

Le Bon	Dominique	Air France
Littell	Justin	NASA
Marin	Miguel	ICAO
O'Connors	Chris	NOAA/SARSAT
Ortenzio	Aaron	U.S. Coast Guard
Pack	Tom	ACR Artex
Parfitt	Christopher	FAA
Plantin de Hugues	Philippe	BEA
Politis	Elias	NRC
Reed	Danny	FedEx
Reich	Jesse	NOA
Saint-Pierre	Dany	Cospas-Sarsat
Smith	Mark	Boeing
Smith	Greg	NTSB
Stimson	Chad	NASA
Street	Bill	WS Technologies Inc.
Taylor	Stuart	Techtest Ltd
Theodorakos	George	NASA
Thiedeman	Edwin	U.S. Coast Guard
Ufer	Bob	Select Controls Inc
Van	Keith	Ameri-King Corp.
van den Heuvel	Blake	DRS Technologies Canada Ltd
Weisser	Carl	Honeywell

Present using WebEx:

Name	First name	Company
AUDOUZE	Xavier	EASA
Lloyd	Klee	Aviation safety
Biell	Mark	Cassidian
Sparks	Dale	JT1 Aerospace Corp.
Koubeissi	Majed	Cobham Aerospace communication
Khalil	Fadl	The Boeing Company

Apologies:

Name	First name	Company
Bitterli	Daniel	Dassault
Cazoulat	Fabienne	DGAC

Day 1: January 13, 2015

Welcome/Introductions/Administrative Remarks

Tom welcomed everyone to the RTCA Headquarters in Washington DC and Introduced Charisse Green, the Designated Federal Officer, to officially open the meeting.

Charisse announced that In accordance with the Federal Advisory Committee Act, the Advisory Committee meeting is open to the public. Notice of the meeting was published in the Federal Register on: October 23, 2014. Attendance is open to the interested public.

Sophie introduced herself explaining the individual rooms set out for working groups and logistical information in the event of emergencies.

Sophie showed a slide on the intellectual proprietary references policy. She asked everyone to read it and asked if anyone had any questions.

Tom introduced round table introductions for both persons present and WebEx.

Sophie asked everyone to complete the sign in sheet, part of the FACA process for traceability.

Agenda overview and approval

Tom introduced the agenda from the onscreen presentation

Day 1

Welcome/Introductions/Administrative Remarks

Agenda Overview and approval

Minutes Toulouse meeting review and approval

WG 1 to 4 status and week's plan

Briefing of ICAO and COSPAS-SARSAT activities

Other Industry coordination and presentations (if any)

- Hervé Dutruc, Airbus Helicopters, AH accidents analysis update

- 12 AM Lloyd Klee, Aviation safety, Experimental Antenna Location testing within the confines of a helicopter tail boom

WG meetings (rest of the day)

Day 2

WG 1 to 4 meetings

Day 3

FRAC presentation

WGs' reports (2, 3, 1)

Action item review

Future meeting plans and dates

Industry coordination and presentations (if any)

Other Business

The Agenda was approved.

Minutes from the Toulouse meeting - review and approval

Tom discussed the last meeting minutes and asked for any comments

There were no comments and the meeting minutes were approved.

Tom reviewed the purpose of the 3 working groups and updates.

Philippe discussed the progress of WG1, that they had reviewed the questionnaire via WebEx to provide rationale for the MASPS. Philippe suggested that at the moment it would be a EUROCAE product only. He said he would like to complete MASPS by February 2016 so it could be referenced in the ICAO ANNEX 6 next update.

Philippe discussed the various milestones

- January 2015: joint plenary meeting
- April 2015: joint plenary meeting
- Mid-June 2015: Document released for Open Consultation
- September 2015: joint plenary meeting
- End-October 2015: Final draft for EUROCAE open consultation
- December 2015 meeting: joint plenary meeting, review of comments received, consensus on the final document
- February 2016 Publication

He explained that the first draft had just been sent to group members. They planned to have feedback during the week's meetings and will continue to make progress via WebEx before the next meeting in Hamburg.

Chad provided an update from WG2, focusing on an updated MOPS for ELTs including crash safety, holding monthly telecons discussing work being carried out at NASA. They want to discuss what updated Mops should look like during the weeks meetings. The aim would be to make it as compressive as possible and to complete by the end of the year.

Al Knox and Ed Thedermen gave an update to the homing WG3 although there were no plans to meet during the week. Al discussed their activities and that they had met 6 times so far. He said that summaries could be found for every meeting on RTCA Workspace. They have been working on papers for JC and 2 working papers 'draft specifications' and 'recommendations on 121.5 MHz homing changes'.

He asked if anyone wanted to join to email Ed or Al. They use the Base camp collaboration tool for discussion papers.

Tom announced other subjects that would be discussed during plenary. He announced that Sophie would discuss the RTCA process on Thursday, discussing the timing and when documents need to come together, also covering FRAC. He discussed that ED-62A was recognised as a better document but there are a lot of old drawings that require updating, suggesting this would be carried out by WG5.

Tom asked if there were any questions regarding the agenda? – No questions

Briefing of ICAO and COSPAS-SARSAT activities

Philippe presented the meetings from his slide discussing the progress for the following meetings.

- IATA WG (AT-TF) and ICAO Ad-Hoc WG (AH-WG) activities (June to September 2014)
- Flight recorder Panel (FLIRECP) meeting end of September 2014
- High Level Safety Conference (HLSC) February 2015

Philippe highlighted that the HLSC would discuss flight tracking, and that they are developing a clear definition of the objectives of flight tracking to ensure that information is provided in a timely manner, to the right people to support search and rescue, recovery and accident investigation activities, as well as, the roles and responsibilities of all stakeholders.

He announced that the AH-WG has recommended amendments of ICAO Annexes for medium term and long term solutions. That they want to implement normal flight tracking by the end of this year and new generation ELTs will fall into this area.

He presented the FLIRECP activities and announced that they have proposed 2 recommendations:-

For aeroplanes of a MCTOM of over 27 000 kg and which are required to be equipped with two combination recorders, the combination recorder located as far aft as practicable should be an ADFR.

And

All aeroplanes of a MCTOM of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2021, shall provide, in a reliable manner, to ground based facilities at a rate of at least once every minute, sufficient information to define their position whilst in distress in accordance with Appendix XX.

Philippe discussed what we may have in the future that could possibly be mandated by ICAO as shown in the table below:

After 1 January 2021

In-service	Individual certificate of airworthiness is first issued	Application for type certification is submitted to a Contracting State
Two fixed ELTs Two fixed recorders	<p>Example:</p> <p>A system from which a position can be determined and one fixed ELT and two fixed recorders</p> <p>or</p> <p>one fixed combined recorder and one ADFR with an integrated ELT and one fixed ELT</p>	<p>Example:</p> <p>A system from which a position can be determined</p> <p>One ADFR with an integrated ELT</p> <p>One combined recorder</p>

Philippe said that they are trying to have a system that is performance based and that Second generation ELT's is the preferred option going forward. Miguel discussed timeframes in that it is being discussed at the moment in the ANC. The outcome of the panel had been amended to bring in line with other groups. The intent is the same but the wording is different. Miguel discussed two comments that were important for our group. In the proposed standards there is a separation of the intended triggering mechanism and the transfer of information. He said the information that needs to be transmitted needs to be autonomous, not the trigger mechanism. An ELT triggers using aircraft power or other devices, but once it is transmitting it needs to be autonomous from other aircraft systems. The other thing is the triggering elements, where there are other aircraft specifics which will also have necessity to trigger, for example a distress code is submitted in the transponder and other ATC systems, it will need activate the system.

Miguel wanted some indication to take back to the commission that we expect to meet the proposed timelines. If it is not possible ICAO would have to look at alternatives but the best way is for them to refer to an EUROCAE/RTCA document.

Any questions

Carl W made reference to two fixed ELT as he had never heard of this. The real installations have one fixed. It was discussed that the requirement is actually 1 ELT. Philippe said he would amend his table.

George said that there might be requirements for Cospas Sarsat to review as they may not be covered by second generation beacon requirements.

Philippe said that people working on this working group are making sure they cover requirements with Cospas Sarsat and work closely with them.

There was general discussion about Philippe's table and he said that this was purely an example of what we could see in the future, not a requirement.

Chad asked is the intent for all types of flight including small aircraft. Miguel confirmed that it's for 27000kg aircraft.

Airbus asked what is an emergency situation, distress? Is it a crash or loss of control? Philippe answered that it will be a distress situation, excessive pitch, bank etc. Airbus wanted clarification for when we are talking about a distress situation. Philippe said that they need to send advance information to the ground before an accident happens.

It was discussed that we need a definition of distress. It was asked if ICAO has a written term for distress. Miguel said they do have a definition but it may not be helpful. Philippe said that it needs to be discussed with the group to come up with the triggering criteria. He suggested that this should be discussed in WG1.

Mark smith asked about the remit of the group, if we are looking at two separate requirements Air France (crash) and MH370. Miguel said that there are two separate requirements and discussion is required.

Tom asked if there were any more questions. - No questions.

Cospas Sarsat Overview

Tom asked Dany if he could give a verbal update on Cospas Sarsat activities.

Dany announced that they had a council meeting in October 2014, discussing and approving proposed changes/amendments to their specifications. He announced statistics in that 37,211 people had been rescued in more than 10,000 events using the Cospas Sarsat system since its launch in 1982. 21% were aviation related.

He reminded everyone for terms of documentation, the council approved several amendments to technical documents, and the most important one for the group would be the second generation beacon implementation plan. R.017 and the first issue of second generation beacon specification T.018. There is a warning that there is new information about message structure but there are still points that need to be confirmed. It is only a preliminary document at this stage.

He announced that this year would be very busy for Cospas Sarsat participants for both MEOSAR and Second Generation Beacons. He said there would be a task group at the end of February to look at test plans for second generation beacons including ELTs activated in flight.

At last council they reviewed a paper from the flight recorder panel group. He said they looked at the requirement but not at the duration of transmissions. This is still ongoing.

Dany clarified that ELT triggering in flight has been looked at by Cospas Sarsat for a few years to improve search and rescue for ELTs. He discussed the importance to have the position as accurate as possible, as soon as possible. He discussed emerging requirements for deployable flight recorders but announced that they also have their own plans for SAR purpose too, independent of what's happening with ICAO.

Any questions

No questions.

Other Industry coordination and presentations

Hervé Dutruc gave an update from his presentation in Toulouse discussing Airbus Helicopters experience and accidents analysis.

He announced that the analysis was based on accident reports mentioning ELTs (42 in total), ADELTs, were not considered.

The purpose of the update was to highlight when the ELT was successfully used when the accident was survivable.

He announced that 67% with ELT's successfully operated. The breakdown was:

- 29% with were with fatal injuries.
- 12% for a non survivable accident.
- 17% for a survivable accident.
- 38% were without any fatal injury or without any injury at all.

He announced that 33% with no ELT operation the breakdown was:

- 19% with were with fatal injuries.
- 17% for a non survivable accident.
- 2% for a survivable accident.
- 14% were without any fatal injury or without any injury at all.

For analysis relative to "post crash fire", 83% crashed without any fire with the following breakdown:

- 33% were with fatal injuries.
 - 26% ELT had transmission
 - 7% didn't have ELT operation
 - 5%: were non survivable
 - 2%: were survivable accidents

He summarised stating that the ELT was efficient for 84% of the accidents

For analysis relative to "post crash fire", 17% crashed with fire:

- 15% were with fatal injuries.
 - 2% ELT had transmission
 - 2%: were survivable accidents
 - 13% didn't have ELT operation
 - 12%: were non survivable
 - 1%: were survivable accidents
- 2% were without fatal injuries or injuries at all.
 - 2% ELT had transmission.

Philippe said that people believe that the ELTs should give you a position of impact. This is not the case; ELTs should give you a position of impact for a survivable accident. It's to help survivors. This is why he asked Hervé to have another look at this data.

Chris H asked for clarification on survivable and non survivable definitions. Hervé said it is when the helicopter is totally destroyed or burnt it is non survivable. It's based on the accident site and the type of accident and the wreckage.

Chris H said, based on Philippe's statement that ELTs should only detect survivable accidents. How do you detect a crash site? Philippe said that this is why there is a new proposal amendment from ICAO. They are now looking for an accident site location.

Chad discussed survivability, he reviewed a few accidents which he presented in Toulouse. There were some crashes where the wreckage was severe but they do have some survivors. It can happen and suggested it might not be wise just to look at wreckage.

He asked if we have data to show that if without the ELT being triggered would it of been harder to find the plane?

There were no more comments.

Tom discussed that Lloyd Klee would be the last presentation but he could only call in from noon from New Zealand. For this reason he proposed a short break and then start the individual working groups from 11 am.

Plenary session ended at 10:45

Individual Working Group meetings commenced from 11 am for the rest of the day and all of day 2.

Day 3: January 15, 2015

Tom Welcomed back everyone to the plenary session and joined up with WebEx participants.

He announced that Sophie would start by giving an overview of the RTCA process and FRAC presentation.

Sophie gave a presentation explaining the Forging Consensus and FRAC Process which and can be found on the RTCA Workspace.

Sophie described the RTCA statement to include policy and that they provide technical standards and recommendations to the aviation industry.

Sophie explained RTCA Membership describing the population of members from around the world and that all meetings are open to the public to enable everyone to get a chance to have their say.

Sophie described the procedures involved in the event of dissenting position and how they can be resolved.

Sophie explained how global standards are harmonized explaining how committees work together jointly.

Sophie demonstrated a slide to show how the final review takes place, FRAC timings for committee review.

Sophie explained how Non concurrence can happen. If this happens they use the same process as the dissenting position.

Sophie described the step by step process for review and comment from the beginning to the end, discussing the revision schedule and how the publication process works.

Sophie described the briefing process to the PMC and the management committee member's role.

Questions for Sophie

Carl W wanted clarification that we are talking about the DO-204 document assuming it will go to issue 'b'? What about in flight triggering part? He understood that this would be in another EUROCAE document from WG1 and asked if he was correct? Philippe explained that this would be in the MASPS document for EUROCAE only and that we will also be updating ED-62B (same as RTCA). Carl asked what about the Cospas Sarsat documentation, will they all be referenced together? Tom explained that the MASPS are independent of ED-62B and DO-204B.

Al Knox asked, prior to FRAC the last time we opened this document there were no working groups, it was all in plenary, is there a process for individual groups or will it all come from working group 5? Tom Clarified that we need to find a way to discuss how this will work. Sophie suggested that we have one or two people in charge of the document itself but it is too early at this stage. Tom explained that it's not really that early, T-18 months so we need to start thinking about it. March, April 2017 would be publication. Second Generation specifications should be ready by then. Sophie said that if we make reference to any other document, it needs to be published and not in draft form.

FAA Presentation on TSO Process

Charisse gave a presentation on the FAA TSO process, explaining timings for TSO's, Office reviews, division reviews, Field reviews, Public reviews and final approval. She also explained that the estimated publication for ETSO would be August 2017.

A question was raised whether the TSO would only be applicable to states or national. Charisse confirmed that it would actually be international.

Carl W asked how will this affect battery TSO? Sophie explained that another working group is working this (SC-225). There will be a discussion on sharing work during the next PMC.

Tom asked if we could make a formal request for TSO C142 which calls up DO-227? Sophie said we can complete a form to request this.

Chris H asked a question related to 1st and 2nd generation beacons. He said the specification is going to have both in, how will the TSO reflect that and how will it work? Charisse said it is something that will need to be discussed as the working group work continues. She thinks that the TSO should be able to work with both types of beacons.

Boeing asked if there were plans to cancel first generation beacons? Charisse confirmed that they have no plans and they can continue under their current TSO.

Carl W said that he understands in-flight triggering would be for second generation beacons, and asked for clarification. Tom said yes that is correct but explained that it was unclear who would regulate this.

Al Knox commented that it's a valid question but there is nothing preventing a pilot turning a 1st generation beacon on. With the current GEO/LEO system it may not be reliable.

Dany said that if you trigger with 1st generation beacons, we may not get a burst. If you are in distress there's nothing to stop you trying. With second they will have guaranteed coverage.

Tom asked how MEOSAR deployment relates to our timings.

Dany answered that currently Galileo is the first satellite but they have issues. USA is proposing to use the DASS satellites which is currently in discussion but would speed things up. It is currently under review with Cospas Sarsat. Dany said that we still need ground equipment which is looking to be available in 2018.

George explained that they have identified 3 phases of MEOSAR, BOC in 2016, LOC 2017 and final operating capability in 2018, guaranteeing global coverage. Prior to that it will only be a degree of global coverage. He added that thought all the phases, 1st generation beacons will still be processed.

Airbus wanted clarification for when will the starting point be for second generation ELT's. They asked if they will have the choice for new aircraft. Tom answered that it will be EASA or FAA to answer. Charisse clarified they will have the option either or.

Tom asked if there were any other questions for Charisse – no questions

Working Groups Reports

WG 2

Chad Stimson summarised the work that had been completed during the week, describing the ELTSAR project Status ongoing at NASA.

He announced that Eric Hiner, Astronics gave presentations regarding Fire/Flame and research of ELT performance in aviation crashes. During day 2, Julian Lamour, Orolia, gave a presentation regarding Automatic Activation and Lloyd Klee from Aviation Safety, NZ, gave a presentation regarding AP installation inside of a tail cone.

Chad described the Collaboration that took place with ELT and component manufacturers and that it was insightful and will help guide WG-2 in arriving at a MOPS, that will produce improved ELTs and will be easier to understand.

He Discussed timelines and that the work should all be complete by the end of this year.

Chad also discussed historical issues with G-switches and described the various stages of testing that would take place this summer on real aircraft crash tests.

Tom asked if exact dates for crash testing had been announced. Chad answered that no dates had been confirmed but it has to be complete by the end of the year. They are looking at beginning of July, August and September.

Philippe said that there had been a survey on G-switches on FDRs which concluded that single axes G-switches were not good enough for FDRs. He took the action to find the report and distribute to the group.

[Action Philippe to locate G-switch report for FDRs]

Questions from the report

Tom said that he would like to see more members from the GA industry and more people who are involved in the installation take part in the WG.

George asked if there is a way we can reach out to Cessna etc-. Sophie announced that she has contacts and Chad took action to chase this up. Sophie took action to also contact gamma and invite them to join.

[\[Action Chad and Sophie to locate & invite GA industry to the WG\]](#)

Vice president of RTCA - Symposium

Andy Cebula gave a presentation to the group discussing the symposium which would be held at the press club in DC on 3-4 June. He said that there are about 300-350 people that attend and the focus is on discussions from current issues and activities to which RTCA are discussing. He discussed the driving elements for particular issues, stating that for ELTs, the conversation would discuss overall concerns and how we would make it happen. He said that typically, special committees have a scope of interest and the conference is more like a plenary session.

Andy described where they are at the moment, identifying programming , key note speakers and that Chris Hart (acting chair of NTSB) is going to be the keynote speaker.

He described the agenda discussing that the first day they will have an awards lunch focusing on safety and the work of the special committees.

He announced that they invite the administrators and will have approximately 10 sessions to feature some of the work from next generation advisory committee.

He said there is also a session on special committees, these haven't yet been addressed but would include Higher level policy questions about congress, FAA, system improvements etc.

Questions

Chad discussed the reason as to why we were talking about this. He said that he wanted to put it to WG2 to ask if we should attend as it would be good to raise awareness of their work and may also bring more stakeholders to the group. He said that we would also like to address to the public that ELT's don't work as well as they should. He said that there was interest throughout the group so we asked Sophie if she could provide more information and thanked Andy for his presentation.

Tom announced that he has attended one of these and asked if there was a panel on aviation safety? Next year the Mops will be complete, MASPS will be coming along and it may be useful? Andy answered confirming that there are a couple of things that can be offered, he wasn't sure if there will be a panel but he now has some ideas. He said that he would go through the work of the committees with the speech writers and it could be useful to take some of this working groups input.

Chris H asked a question as he was trying to get a feel for the audience, who attends? Andy confirmed that it was made up from international participants, FAA, other areas of government offices, analysts, reps from policy and technical personnel from companies like Honeywell, that's the type of attendees. He said that it wasn't highly technical but it's normally discussed at a policy level of technical.

Chris asked if airlines turn up. Andy confirmed that Yes, U.S. carriers are well represented and a few international airlines also attend. He said that there are also representatives from automation companies, airports etc, controllers, pilots, GA, etc.

Tom asked if there were any more questions for Andy- No more questions.

WG 3 Report

Alan Knox described that they are a bridge between helping define a second generation homing signal and a lot of the work is limited to second generation work. He explained the TOR's for the working group which evolved from JC28 last summer to drill down the rescue response and discussions from the committee as they still see the need for a homing signal, even with the increased accuracy because terminal rescue operations still require it. He explained that formally it had been treated as ancillary device with Cospas Sarsat beacons so they have asked them to develop specifications in to TX.001 (Second generation specification). One of the main things they are trying not to do is to drive new additional requirements to the airborne community and handheld DF communities. They have a couple of DF manufacturers involved. Once they have developed specifications they plan to work it backwards into first generation beacons in the future.

The status so far is that they have conducted 6 meetings since the initial tasking at the JC28, they are working on the draft characteristics for the homing signals, they are also as a result of IMO and ICAO, looking at harmonisation issues looking at changes to the 121.5 MHz duty cycle, although nationally the US would like to steer away from 121.5 MHz as a homer, as it has significant issues with battery drain. Internationally due to lack of 406 ground DF systems, we are not there yet so second generation beacons will probably end up being a transition, allowing us to use 406 as a homer, continuing to use 121.5 MHz for the nations that want to use it.

Looking at different duty cycles they are looking to have land and sea trials.

Papers are being prepared for the Cospas Sarsat task group that will meet in February in Montreal. They will give an update on 121.5 MHz homing with requests for support for live tests. Then they will fully develop the specification for the homing specification. He said for those who are members, notes from the meetings can be found on the RTCA Workspace. If anyone is interested in joining then to email Ed or Al and they will add them to Base camp which is a tool used for online documents and discussions. In the meantime he will continue to put papers on RTCA.

Questions from the report

Carl – in terms of 12.5 MHz in current equipment, the latest version of DO-204A states that the duty cycle should not be interrupted, what will be the consequence if you turned it off instead of having it on all the time? Al said that that is one of the things they are looking at with the alternative duty cycle. Australia and New Zealand who use it a lot in maritime use asked that question. Alan said that they are having some beacons manufactured so that they can trial this in real time.

Tom asked what would happen to 243 MHz. Alan said that when they discuss 121.5 MHz , 243 MHz will be associated too as it is a harmonic.

Chris H discussed Carls point in DO-204 that you're not aloud intermittent signal, he said that you can key the carrier signal as stated in section 2.4.5.b. Chris believes currently you can interrupt the signal for a short period looking at DO-204.

It was discussed that the meeting will close at 3:30 due to people catching flights.

Lunch 12:15 – 13:00

WG 1 Report

Philippe described progress from the WG1 working group. They reviewed the questionnaire and discussed comments received. They had an agreed position for all questions. When the document is clean Philippe took action to send to the complete group to ensure everyone understands that all of the questions have been answered.

[Action Philippe to send the revised questionnaire to group members]

[Action group members to review and produce feedback as required]

Philippe explained that they analysed all criteria submitted by members and decided which to keep. There will be a way in the document for OEM's to keep nuisance trigger low.

They have to define the maximum level of nuisance triggers that the RCC can accept and this issue is still being discussed.

Any questions

No questions

Philippe discussed the MASPs and the triggering system for the ELT. Philippe took an existing MASPS and altered it to suit our requirement, he explained the document structure. He said that the first chapter is the introduction and explanation about the document, revisions etc. chapter 2 described the section of the overall system. Chapter 3 is dedicated to the triggering system performance, scenarios, triggering criteria, persistence time, integrity reliability etc Chapter 4 is for procedures for performance requirement verification.

Philippe wanted to discuss the scenarios, they had discussion about the use in helicopters and fixed wing, they tried to give a definition of the scenario. Unusual altitude, speed, loss of power on all engines, but stressed that there will need to be a persistence period to prevent nuisance triggers.

He explained that this is a very short list but it is important to keep nuisance triggers to as close to 0 as possible.

Philippe discussed interface with 2nd generation beacons, he asked what the feelings were of the group? Should we use one pin or should we have a second pin? He asked for input.

Tom asked if digital interfaces were discussed, like serial, Arinc interfaces.. This followed by general discussion about using Arinc and discretes. It was discussed that most manufacturers use both discrete and Arinc data.

Alan B suggested that we should keep it open for the ELT manufacturer and the OEM. Philippe discussed that it would be nice to have some standardisation.

Tom said that standardisation would be beneficial and Hervé said that if we are talking about Arinc, it should be standardised in the Arinc document not ours. He said that it should be down to the beacon manufacture to choose which type of input to use which he could control via part number.

Airbus said today most ELTs have an Arinc interface and that's what we should use for the future.

Chris H asked a question, why do we need an option to trigger on the ground? Philippe discussed that all existing requirements of the ELT should still be present. Philippe discussed a question from Dany which they couldn't answer. How they differentiate aircraft in trouble and aircraft on the ground? Cospas Sarsat would like to know if this is an aircraft in flight or an aircraft that has crashed. For 2 reasons, how they process the data and second, for Search and rescue responders to act upon. The question is if it's a manual from the pilot how do we tell if it's in-flight or on the ground?

Philippe said this part will have to be added in the MOPS.

Tom said that we need to identify key parameters; we couldn't do this with one pin. This is possibly where Arinc could come in. It was discussed that we should look at Arinc for large aircraft and maybe discrete for general aviation but we have to limit the commands.

It was said that the most important information is for the ELT turn on, turn off and cancellation.

Dany explained that there are 3 messages, Triggered in flight, Triggered on ground and cancellation but it would be good to know manual activation against automatic.

It was discussed about fail safe on power down, you could lose Arinc power. There were also general discussions that this information should be in the MOPS not the MASPS.

Philippe asked if WG5 to come up with some wording, to consider if they need discrete, Arinc etc. Tom agreed that it should be discussed in WG5.

Philippe said that they got as far as chapter 4 during the week and that WG1 will need to continue with the appendix for examples of sets of criteria. These will have to be tested using crash report data. This may be left open for the manufacturer to perform.

Questions from the report

Chad said that Lloyd Klee gave a presentation to group 1 on day 2. Group 2 didn't get chance to see it, he wanted to ask if anyone had any questions for Lloyd whilst he was online?

Unfortunately Lloyd wasn't online as thought. Philippe explained that everyone should have a copy of the presentation and to feel free to ask questions via email.

Action item review

Philippe discussed open action items and presented them on the screen. Actions 1,2,3,4 were all done but no comments were received for action 5.

He discussed the action to Chris H to produce a table for WG1 – Chris said that he hadn't done it but it has been overtaken and may not be required.

Philippe said that the first MASPS document will be sent next week.

Action 9 was discussed and Tom said that we need to think about what we would like to schedule to the Hamburg meeting. We need to start taking about GNSS receivers.

Dates for the next meetings

Dates for the next meetings were confirmed as:

Joint meeting 4: Hamburg	21 to 23 April 2015
Joint meeting 5: Washington DC	1 to 3 September 2015
Joint meeting 6: Paris	15 to 17 December 2015
Joint meeting 7: US	xx to xx May 2016
Joint meeting 8: Europe	xx to xx September 2016
Joint meeting 9: US last meeting	xx to xx December 2016

Closing Remarks

Tom thanked everyone for attending and thanked Sophie for hosting the meetings at RTCA.

Meeting closed at 15:30

End of Day 3

List of Actions

Action Number	Actionnee	Action	Date
Action 1	Philippe	To locate G-switch report for FDRs for Chad and WG2	Done
Action 2	Chad and Sophie	To invite General Aviation industry to WG2	TBD
Action 3	Philippe	Send the revised questionnaire to group members	31 March
Action 4	ALL	Review revised questionnaire and produce feedback as required for WG1	31 March